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rise to spores and these spores in turn produce new vegetative plants. This comparatively short phase in the life history of the moss which we call its fruit, or more properly "sporogone," becomes the principal part of the life of plants with precocious reproduction, such as Ferns, Equisetaceæ and Ophioglosseæ. In these cases the prothallus at once gives rise to male and female organs, and the resulting "sporogone" by its vigorous growth soon destroys all traces of the early sexual phase. This primitive thallus becomes more and more subordinated as we advance in the plant kingdom, becoming of less relative size and more and more transient. As we advance the sexes begin to be separated and the way in which this might have been accomplished is very ingeniously presented. First the spores themselves become sexual and we have microspores and macrospores and here the prothallus nearly disappears and with it "almost the last trace of the primordial cellular Alga." We would thus have both a male and a female prothallus.

At last in Phanerogams the microspore or pollen grain produces the "pollen tube" as the representative of a male prothallus; while the macrospore or embryo sac gives rise to the female prothallus, which we call "endosperm."

The whole subject is one of exceeding interest and importance and we now begin to know enough to know that our old ideas of the relations of plants hardly deserve even the epithet "crude" and that immense fields of investigation are opening before us the extent of which no man dares to measure.—J. M. C.

#### How Cross-Fertilization is Aided in Some Cruciferae.—

In some *Cruciferae* the introrse anthers of the long stamens become extrorse before the pollen is shed. In the opening buds of *Brassica campestris* and *Cardamine paucisecta* the anthers of one pair of stamens—slightly surpassing the stigma—exactly face those of the opposite pair; but while the flower is expanding and before the pollen is discharged the anthers of each pair by quarter twists of the filaments—one to the right, the other to the left—are made to face in opposite directions, thus virtually becoming extrorse. Moreover, the anthers bend downward, making it still more difficult for any wind shaking to bring pollen in contact with the stigma. The anthers of the short stamens remain introrse since, the stigma being out of their reach, they can do no harm.—VOLNEY RATTAN, *San Francisco, Cal.*

*Sarracenia purpurea*, L.—On June 8th while collecting a few specimens of *Sarracenia purpurea*, L., I was surprised on drawing aside the petals to look at the stamens, to see the whole cavity formed by the petals and the peltate expansion of the style filled with flies as large as the common house-fly, all busy as could be eating the pollen, of which scarcely a grain could be seen. I counted fourteen flies in one flower. They were in no hurry to vacate the premises. There was a shower coming up at the time, but they were evidently there for food. Nearly every plant examined was filled in the same way.—JOSEPH JACKSON, JR., *Millbury, Mass.*